VOL. 5. No. 2 NOVEMBER, 1907 15 Cents

The Cornell Countryman

New York State College of Agriculture at Cornell University

The College of Agriculture is one of several co-ordinate colleges comprising Cornell University. The work of the College of Agriculture is of three general kinds: The regular teaching work; the experiment work; the extension work. The courses of instruction fall in the following groups:

1. Four-year course, leading to the degree of Bachelor of Science in Agriculture (B S.A.). As a variation, the last two years may be chosen in subjects pertaining to Landscape Architecture and Out-door Art, or to Home Economics. In the Graduate Department of the University students may secure the Master's and Doctor's degrees (M.S.A., and Ph.D.).

2. Special work, comprising one or two years. (a) Agricultural Special. (b) Nature-Study Special or Normal course.

3. Winter-Courses of 11 weeks: (a) General Agriculture. (b) Dairy Industry. (c) Poultry Husbandry. (d) Horticulture. (e) Home Economics.

Staff of the College of Agriculture. 1907-08

L. H. BAILEY, Director.

I. P. ROBERTS, Professor of Agriculture, Emeritus.

Farm Practice:
J. L. STONE.

Farm Crops:
G. F. WARREN,
P. J. WHITE.

Soils:
E. O. FIPPIN,
G. A. CRABB.

Agricultural Chemistry:
G. W. CAVANAUGH,
C. C. HEDGES.

Plant Physiology:
B. M. DUGGAR.

Plant Pathology:
H. H. WHETZEL,
D. REDDICK.

Experimental Agronomy:
T. L. LYON,
J. A. BIZZELL.

Experimental Plant Biology:
H. J. WEBBER,
J. B. NORTON,
C. F. CLARK.

Entomology and Invertebrate Zoology:
J. H. COMSTOCK,
M. V. SLINGERLAND,
A. D. MCGILLIVRAY,
W. A. RILEY,
J. G. NEEDHAM,
C. R. CROSBY,
J. B. RRADLEY.

Horticulture:
JOHN CRAIG,
L. B. JUDSON,
C. S. WILSON,
L. D. BATCHELOR.

Animal Husbandry:
H. H. WING,
M. W. HARPER,
G. W. TAILBY, JR.,
C. H. VAN AUKEN,

Poultry Husbandry:
J. E. RICE,
C. A. ROGERS,
CLARA NIXON,
R. C. LAWRY.

Dairy Industry:
R. A. PEARSON,
W. A. STOCKING, JR.,
H. C. TROY,
W. W. HALL,
H. E. ROSS,
H. L. AVRES,
ALLAN FERGUSON,
MINNIE JENKINS.
W. W. HALL,
W. E. GRIFFITH.

Farm Mechanics:
H. W. RILEY.

Rural Art:
BRYANT FLEMING,
A. D. TAYLOR.

Drawing:
W. C. BAKER.

Home Economics:
FLORA ROSE.
MARTHA VAN RENSSELAER.

Agricultural Meteorology:
W. M. WILSON.

Rural Economy:
G. N. LAUMAN.

Extension Teaching:
C. H. TUCK.

Nature-Study:
JOHN W. SPENCER,
MRS. J. H. COMSTOCK,
ALICE G. MCCLOSKEY,
ADA E GEORGIA,
C. E. HUNN.

CONTENTS

NOVEMBER, 1907

	PAGE
Cover Design. - - *Photo by Troy*	
Table of Contents - - *Photo by Troy*	32
Frontispiece, "Jack and Jess and Jean" -	33
The Draft Horse - *R. W. Dunlap*	34
Training at the New State School of Agriculture at St. Lawrence University, *K. C. Davis*	39
Practical Apple Orcharding, *L. R. Bryant*	41
Forestry and the Prairie Farmer, *H. P. Baker*	45
The Rural Progress Conference at Amherst, Mass. - - *S. H. Perky*	49
Agriculture of Other Nations. VI. Sweden. *A. G. Hammar, '07*	51
Ether and the Forcing of Bulbs, *J. Taubenhaus, '08*	54
Some Biological Aspects of Agriculture. I. Introduction. - *V. McCaughey, '08*	57
A Summer's Work on the University Farms, *E. W. Leland, '07*	58
A New Elective Lecture Course, *M. P. Jones, '08*	58
The Municipal Abattoir, *J. DeMary, Sp.*	59
Editorials	
Board Changes - -	61
Still increasing - - -	61
Red and White Tape -	62
The Meaning of the Honor System,	62
Music Hath Charms - -	62
Volume IV. - - -	63
Men Needed - *D. Arthur Hughes*	63
General Agricultural News -	64
Campus Notes - - -	65
Former Students - - - -	67

SUBSCRIPTION PRICE $1.00 PER YEAR
Entered as second-class matter at the Postoffice at Ithaca, N. Y.

COPYRIGHT BY THE CORNELL COUNTRYMAN

"JACK AND JESS AND JEAN." See page 66

The Cornell Countryman

VOL. 5 NOVEMBER, 1907 NO. 2

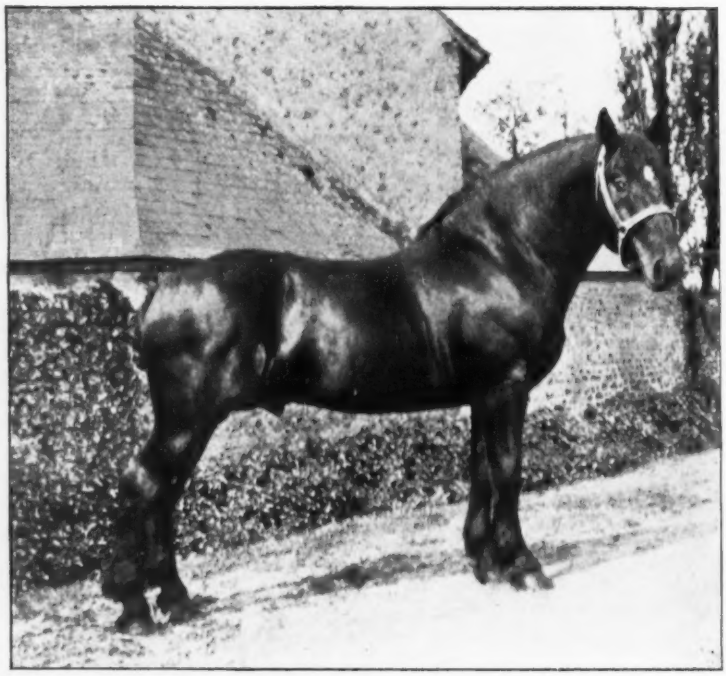
THE DRAFT HORSE

By R. W. Dunlap

Dairy and Food Commissioner of Ohio

THE first question which would naturally arise in discussing this subject, is, "Is the modern draft horse any different from the ancient draft horse, or the draft horse of a few years ago?" To answer this question, we have only to inquire what was the draft horse of former years. I am yet young, but old enough to remember the time when the draft horse was not of the same make-up, conformation or type as that of to-day. An animal called a draft horse a few years past could not properly be called a draft horse now. A short time ago any horse that would weigh fourteen or fifteen hundred pounds, awkward, big headed, lazy and good for no particular work, was classed as a draft horse by the layman, and to day in many places this same notion prevails. Men say, "I have a *good* draft horse, but cannot get those good prices I hear of and read about. I do not think raising draft horses pays, hence I will abandon the business and try something else." We have all heard such expressions. If we will become acquainted with the animals such men raise and force upon the market, we will find that they are *not* draft horses, neither are they road or coach horses, but quite likely a lot of misfits that belong to no particular class, and for which there is no market. Should not the farmer learn to produce that which the people want, what the market demands? What would you think of a merchant stocking up with a lot of inferior, low-grade articles for which there was no market? I think you would consider him unwise and would say that he would certainly fail if he continued that practice. It is not difficult for us to recognize the folly of the merchant keeping articles for which there is no demand, but it is almost impossible to get some farmers to admit that it is just as unwise and unprofitable to keep unmarketable horses. There may be some excuse for certain farmers raising what is known as the "general purpose horse," or the horse weighing 1,200 to 1,400 pounds, with no particular characteristics about him, and for which there is no popular demand.

I say there may be need for such a horse on some farms where the owner has the heart to use the same animal to draw the breaking plow, the harrow, the corn planter and the binder and mower six days in the week, and the buggy and carriage at night and on the seventh; where he does not object to working an animal all day at heavy work at which every minute of the time the animal must exert its full strength to accomplish its master's desire; or in case he enjoys taking the dust of every other driver on the road and likes to rise early Sunday morning in order to have plenty of time to get to church, and if he is willing to take a low price for the animal when he places it upon the market. I say under these circum-



COURTESY OF MCLAUGHLIN BROS.

XERMIDON

A three year old Percheron Stallion

stances, where we breed and raise horses to wear out on the farm, and don't mind wearing ourselves out at the same time, this horse may have a place. If, on the other hand, the owner prefers a horse that can draw the plow ten or twelve hours each day without exerting his full strength each moment of that time, and a kind that takes only four to do the same amount of work that five or six smaller ones would do, and do it easier to the animals and owner as well, the kind that the other fellow always wants and for which he is always willing to pay a very liberal price, the kind that does not take much, if any more food to produce, he must in this case abandon the misfit and seek to produce the draft horse of as near the modern type as is possible.

It might be well to describe at this time what should be the conformation of the modern draft horse. I suppose all of you have attended your State Fair and seen these modern draft horses on exhibition. If you have spent some time in the horse ring, you have observed that the up-to-date draft horse is one that stands close to the ground with comparatively short legs and broad base. The feet are well apart, with space enough for another foot of the same size to be placed between them. The back of this animal will be somewhat shorter than that of the speed horse. It is with the hind legs that he propels himself, and thus it can be easily seen that since the collar is on the shoulder the weight of the load is drawn by the back. Therefore, it must be short, broad and well muscled. The shoulder of this horse is long, well-shaped, so as to give a good base to the collar. It should be more nearly perpendicular than that of the speed horse. However, sloping shoulders are often

found in our best draft horses. The hocks of this horse will show rather a narrow angle because it is by this that a greater leverage is given and he is able to move heavy loads.

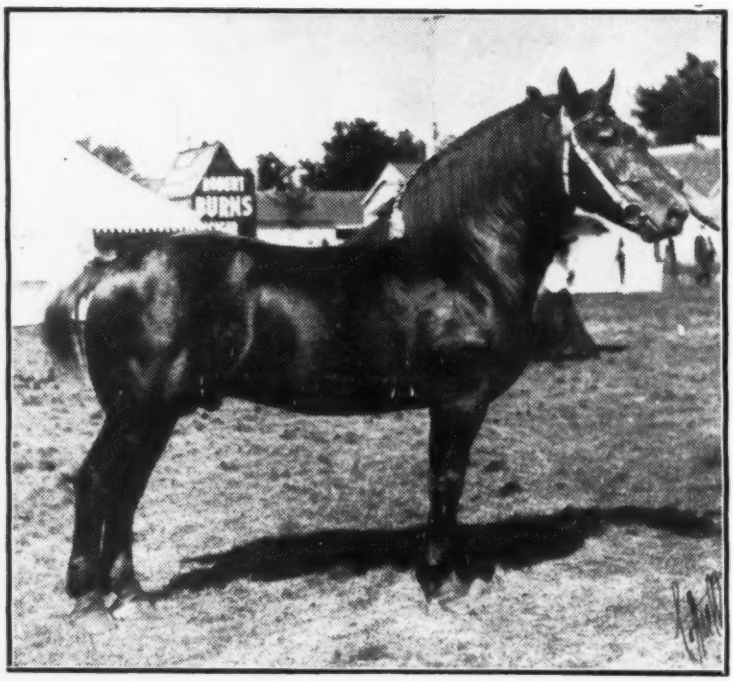
His body is massive, low set, ample, very muscular and cylindrical. He will have solid, large, broad bones and limbs, the latter well-formed and properly placed under his body. He will have large, healthy, well-formed hoofs, heels well separated, frog strong, healthy and quite hard, good physiognomy, plenty of style and action, ardor and endurance. He must have a short, rather straight pastern in order to do the heavy work required of him. His weight should be in the neighborhood of a ton. If he weighs a little more or a little less, but is good otherwise, he will not be long without an owner.

You ask what breed this animal should be. I say that he can be of any draft breed. Each has special characteristics which commend it to the admirers of different breeds. It is not necessary at this time to favor one and condemn the others, for all breeds sell alike when the animals are of the right kind.

It is quite easy to describe the animal we would like to produce, but to produce him is another thing. Why are there not more good horses on the market today? Is it because the service fees of good stallions are too high? This may be the reason, and I believe it is in many instances. I think many times the stallion owners are responsible for so many inferior horses. Often the fee asked is more than the average farmer with the average mare feels he can afford to pay. What should the fee be? This I cannot answer. In one locality where good draft mares are found a fee of $20 for the service of a good registered draft stallion to insure a living colt would be considered right and proper, while in another locality, where inferior mares are kept and farming is not so profitable, it would be considered too high. Quite often the service fee is more than $20 and a good colt is not insured. This price very often is the cause of owners of good mares breeding to inferior animals and getting poor colts. I think stallion owners are in too big a hurry, many times, to get back the high purchase price which they were compelled to pay for the stallion, and they take what is considered a short cut and charge quite a high fee.

In choosing a sire to produce a modern draft horse, I would much prefer the one that has been in service a few years to the one fresh from the importer. I would prefer the stallion which has had moderate work throughout the year when not on the stand, and is in moderate flesh, to the one that has been housed the whole year and is covered with fat. The colt is larger and stronger from the former than from the latter, and is almost sure to make a better horse. The exact conformation of the stallion I would use to produce the modern draft horse would depend somewhat upon the mare I had to breed. If I had a rather long-limbed, long coupled dam, I would choose a sire the reverse; that is, one short-limbed and well coupled. We must not forget, as so many are prone to do, that the dam is just as important, if not a more important factor in producing a good horse than the sire. We can not, as many hope to do, breed any kind of a broken down, crippled and diseased mare of any or no breed to even a grand champion draft stallion, and get a horse that will top the market. We must remember that like produces like, and a defect is almost sure to be transmitted to the young.

The high service fee and inferior stallions may be the cause of many worthless horses, but the mares are certainly responsible for many, many more. It is a lamentable fact that there are comparatively few good draft mares, mares suitable to produce the modern draft gelding such as our big packers, brewers, merchants and others are more than willing to buy at long prices. If we can only devise some means to rapidly improve our mares we will soon have good



COURTESY OF MCLAUGHLNI BROS.

ETRADEGANT

A fine type of the Percheron draft horse, winner of many prizes

horses as we have good cattle, sheep and hogs. To be sure, it costs more to produce good horses but I am sure the profit is greater, and we are well repaid for the extra expense and effort.

We must not, however, conclude that if we have good parents for our modern draft horse, that we have met all the requirements necessary to produce him. Not by any means. We have the foundation upon which to begin to produce this valuable animal, and our animal will in a great degree be just what we make him. In the first place, we must decide about a year in advance when we want the colt to come. If we are prepared for raising a spring colt, we would breed our mares so that the colts would be foaled after the spring crops are in the ground. If possible to get along without the services of the mare, we would not work her again until the colt is six months of age, the time for weaning. Unless you are prepared to shelter and take especially good care of mare and colt during winter months, I would not breed for fall colts. My experience and observation has been that it is much better to have colts foaled in spring. We are now breeding *all* our mares to foal in spring. We prefer that the mare be worked up to the time of foaling, but not worked after that, until the colt is weaned. The most critical time of a colt's life is the first year. Many a colt fails to become a valuable horse because of neglect the first 300 days of its life.

Some one has said the feed is as important as the breed, and this is true. No matter how well bred a colt may be, if it is not given the proper kind and proper amount of food, it can never develop into a first class horse. Commence with the colt early and teach it to eat. Feed it

plenty of good food that will make growth and not fat. Grow this feed if possible, because many will not feed enough if they must pay out cash for it. Grow alfalfa, oats, clover, corn, etc., and see to it that the colt gets a good, *liberal* amount of a properly balanced ration for its proper development. I want to emphasize the importance of not being stingy with the feed for the young animal. My observation has been that a small per cent. of the colts get enough feed the first winter. Moreover, be always on the lookout for vermin. They are expensive boarders. Notice the colt's feet and keep them properly trimmed.

We sometimes begin working colts at light work when two years of age. They earn their way until four, when they are *fatted* for the market. I underscore fatted because there is no animal upon the farm that will pay so well for the food consumed in fattening for the market, as the horse. Do not think any more about selling a thin horse than you think of selling a thin steer or hog.

We should not follow fads too far. In other words, we should not sacrifice quality for something of much less importance in order to produce a animal that might, in a few cases, command a higher price. I believe sometimes we sacrifice quality for quantity; that is, we will do everything to get size and neglect other things of greater importance. It is also a fact that some breeders have preferred to breed to a horse of a certain color, of less quality, than to a horse of another color of the same breed.

Before bringing this paper to a close, and perhaps it might be of interest and benefit as well, I will call attention in as short a space as possible to a few measurements that are usually uniform in most all the well-conformed draft horses. I am well aware that a person can not become an expert judge by the facts I am going to present, or by any amount of study or book knowledge he may acquire; nothing will take the place of artistic instinct and actual practice in judging animal conformation. However, I do know that there are some elementary principles which can be readily learned that will greatly aid the artistic instinct, and greatly help in obtaining practical experience in judging. To show the possibilities of good results in this study, I wish to call your attention to some measurements made by Mr. J. B. Crabb, of the Ohio State University, in the measurements of forty-six horses, mostly three-year-old stallions. He compared the head to other parts of the body, and found results as follows:

Number of horses measured		46
Age		3
Weight		1,803
Length as compared with length of head:		
Height at withers	66.04	2.47
Height at croup	66.62	2.48
From point of shoulder to quarter	69.75	2.61
From lowest point of chest to ground	34.08	1.32
Circumference of arm	22.7	.83
Circumference of cannon at center	10.16	.38
Circumference of foot at coronet	18.83	.70
Length of head	26.71	1.00
Width of forehead	8.17	.30
Width of chest	20.93	.78
Width across hips	25.48	.95
From point of hock to ground	24.53	.92
Circumference of thigh	21.5	.80
Circumference of shank	11.74	.44
Circumference of body	86.24	3.23
Length of croup	24.5	.91
Dorsal angle of scapula to hip	30.9	1.15
Length of shoulder	27.3	1.02

To succeed in the draft horse business, as in any other, it is necessary to devote some time and study to it. Think how many farmers of to day are raising horses that, if sold, would hardly pay for a year's keep. Those farmers, I venture to say, do not lose much sleep in studying the market, do not spend much time in attending farmers' institutes, and pay no attention whatever to the conformation of horses for different purposes.

The man in the draft horse business who studies the *market* as well as the *horse* and seeks to produce that which the market demands, has succeeded in the past, is succeeding at present, and, I believe, will succeed in the future.

TRAINING AT THE NEW STATE SCHOOL OF AGRICULTURE, AT ST. LAWRENCE UNIVERSITY

By K. C. Davis, Ph. D., Dean

Canton, N. Y.

SCIENCE and practice go hand in hand in the modern up-to-date farming. The farmer boys of today have as good a right to a practical agricultural education as the physician or lawyer has to a training along his line before he begins to practice his profession. A short course of two or three years at an agricultural school is of more value to a young man than ten or fifteen years of experience, much of which may be adverse experience and cause a great deal of loss to himself or those who are financiering his experiments.

Most of the people who are successful in America, at the present time, have received education somewhere. The more practical the education is which a young man or a young woman receives, the better it will pay in dollars and cents. The well educated and well trained farmer is constantly demonstrating today the great advantage he has over the uneducated and untrained farmer. Agriculture is coming to the forefront of the world's attention and throughout the country Agriculture is experiencing a wonderfully intelligent uplift; it is such a forward movement as no other calling ever received and no other age ever witnessed. Only the educated farmer will have a chance in the sharp competition of the future, but he will live much better and make much more than the farmers have been making in the past.

The training to which I refer should be of such a character, and is of such a character in the new Agricultural School that the School does not resemble any other school you ever saw. The students learn by doing. The useful side of the knowledge and training given to students is emphasized. This is the principle on which the school is founded. At every point the school is made to cooperate with the farm, the shop, the dairy and the home.

The Agricultural School has several different departments. Some of these are:

1. Agriculture and Horticulture.
2. The Dairy Department.
3. Animal Husbandry.
4. Manual Training.
5. Domestic Science.
6. Scientific Subjects.
7. Business Subjects.
8. Academic Branches.

In all these different departments practice is given on the farm, in the laboratories, in the shops and by trips to neighboring localities where valuable lessons may be learned. The Agricultural and Horticultural subjects may be considered to include soils and fertilizers, economic plants, the study of injurious and beneficial insects, diseases of plants, spraying to combat diseases and insects, market gardening, fruit raising, corn and grain studies.

Animal Husbandry includes stock judging, breeds and breeding, feeds and feeding, care of animals, diseases of animals, animal physiology, poultry raising and herd management. The Dairy Department work includes butter and cheese making, testing for butter fat, care of milk and cream, testing for acid, water, etc., use of culture and bacteria, rules and laws.

The farmer should be a good business man. Many farmers of the present time are not well up in business methods. The school will give training in farm management, farm economy, commercial law, business forms, and farm arithmetic.

The value to the farmer of mechanical training is apparent on every hand. It enables him to handle his machinery and tools and to perform all of his work with greater accuracy and precision. To train the farmer along these lines the subjects given

him are farm carpentry, farm blacksmithing, assembling new machinery, care of farm implements, planning farm buildings, and farm mechanics.

The farmer's wife and daughters ought to be something more than mere machines. Too many of them grind out their daily tasks, calling them drudgery and hating them with all their strength, year in and year out. They should study many things their brothers study and others that their brothers do not study. This broadens their views of housework and farm life. The possibilities of their lives are opened up and a way to better, purer lives is shown them. Training is offered in cooking, chemistry of foods, home nursing, emergencies, home management, laundering, domestic hygiene, sewing, and other special subjects for women

The Village of Canton, N. Y., has been chosen as the site for the new State School of Agriculture, which is a department of St. Lawrence University. Canton is a beautiful village, with churches and good homes where students will find a wholesome environment. The University spirit pervades the atmosphere and education is looked upon with credit by all citizens. It is the county seat of the largest country in the state and is only eighteen miles from the St. Lawrence River. And the surrounding country is a good farming region.

The main building of the new State School of Agriculture is not to be completed until next spring but the school has opened in temporary quarters, with a small class of young men, who have enrolled for the regular course of two years. Classes are held in the farm house which is fitted up for school rooms and laboratories. The chemistry class, however, uses the University laboratory in Carnegie hall. The class in land drawing is making good application of the knowledge gained, by attending to the surveying, location, and laying of tile for the drains of the University farm. The present class in Stock Judging and Study of Breeds is conducted by Dr. J. M. Payson who spent last year in the Cornell College of Agriculture. This class is taken to nearby herds of pure-bred stock for exercise in judging and for study. It is hoped that some stock may be kept at the University farm for this and other purposes in the future.

The class in Farm Arithmetic is instructed by Prof. M. L. Fuller. Every problem handled in the subject deals with the farmer's conditions right here in this state. The rainfall required for certain crops, the income of all fields, the cost of filling silos, the expense of harvesting, storing and marketing certain crops,—these and hundreds of other problems are worked out by this class.

The University farm is slightly rolling and has a diversity of soils. This farm adjoins the large campus on the south. The new school building is thus located in the group of college buildings and yet immediately adjacent to the farm which the School will use. Farm machinery is being provided. A fine farm team of grade Clydes is owned by the School and students will have the benefits of the most modern farm practices and management. There is a good supply of reference books, text books, charts and other apparatus for the use of the classes.

The tuition at this State School of Agriculture is free, of course, to all, only small fees being charged for text books, laboratories, etc., Pupils are received at this school from the common schools of the country and villages.

EDITOR'S NOTE—Because of the increased attention that is being given to agriculture in High and secondary schools, it has seemed worth while to present this side of agricultural education to our readers. Dr. Davis' article will be, it is hoped, the first of a number of similar articles upon agricultnral work in the intermediate schools in various parts of the country.

PRACTICAL APPLE ORCHARDING

By L. R. Bryant, Princeton, Ill.

THE prospective orchardist, seeking advice will do well to remember that the experience of one man in a given locality may be very different from that of another man in another locality, and that two persons in the same section, but with different soil, elevation and contour of ground may be equally successful with quite different methods. This article is written from the standpoint and in the light of the experience of an orchardist in Northern Illinois and this fact should be taken in account by the reader.

Commencing with the location and the planting of the orchard, a fair elevation with a gradual slope to lower ground in the vicinity gives land drainage and also air drainage, which may mean less liability to frost in the spring. The timber soil is considered to have some advantages over the black prairie soil. If the land has been in oats or other grain crop the year previous to planting, it will give a better opportunity for the preparation of the soil. After the removal of the crop the land should be carefully measured and the exact location of the rows of trees, running in the direction in which it is desired to plow the land, preferably across the slope, determined accurately and marked somewhat permanently at each end of the rows by stakes. If this is done carefully it will save doing it over in the spring. Early in the fall, plow two or three rounds at each line of stakes, throwing the furrows out, leaving as deep a dead furrow as possible in the line of the two stakes. As late in the fall as possible, just before freezing, the plowing should be reversed and the furrows filled in, leaving a ridge or back furrow where the dead furrow was before.

Before planting time the location of each tree should be marked. The proper distance apart for planting apple trees varies some with the variety, but is generally from 30 to 33 feet. Some varieties like Duchess, Yellow Transparent and Ramsdell Sweet will do as well at 28 feet as others like Willow, Ben Davis and Domine will at 33 feet. But one variety should be planted in a row, running the way the land is plowed, and for convenience in spraying, gathering, etc., four rows or multiples of four of the same variety, and these rows may vary in distance with the variety, if so desired, but the distance apart of the trees *in* the rows should be uniform throughout the orchard so as not to interefere with cross cultivation. If the orchard is a large one it may be divided into blocks by making wider spaces every 10 or 20 rows.

To mark the place of each tree, small stakes about 18 in. long may be used. To set these, first stretch a line on the rows at each end of the plot and measure off and mark for each tree in those rows, then by stretching a line for a row at a time and sighting across, the ground can be accurately and rapidly laid off. When digging the holes, use a replace so that the trees may be readily planted in line. This replace is an inch board, four feet long with a notch in the center and a hole in each end to fit the small stakes.

Trees of two or three years of age are the best for general planting and if without heavy side limbs can be much easier shaped and headed to suit. Prune off all broken roots and shorten any that are unduly long. Plant the trees a little deeper than they originally grew and lean slightly toward the southwest. Plant as early in the spring as the soil is in nice working condition, straightening out the roots and working fine earth amongst them, packing it firmly. If the roots are kept moist and the soil is in the right condition and packed very firmly, watering is not necessary.

CULTIVATION

After planting the trees the ground left between the rows may be plowed

COURTESY OF THE HORTICULTURAL DEPARTMENT

THE EFFECT OF CROWDING IN AN ORCHARD

and planted to corn or potatoes. If the trees are planted 30 feet apart, seven rows of corn, 3 feet and 9 inches apart can be planted in each space. As the trees get larger, one less row may be planted and the extra space given next to the trees. This space next to the tree row it will be necessary to cultivate with a single horse and cultivator. If the orchard is to be planted to corn it should be rowed both ways so that it may be cultivated cross-wise. In plowing the orchard the next and succeeding springs, the best plan is to use a one-horse turning plow first and turn two or three furrows towards the tree rows, on each side, going over the whole orchard in this way, then commence with a two-horse plow and back furrow around the first row until the next one is reached, then take the third and every odd numbered row in the same way. The next year plow with the small plow the same way as the first time, but when the large plow is used, commence on the second row and plow towards the even rows. This method will ridge the ground next to the trees, very slightly but will keep the rest of the orchard practically level and in much better shape than if no system is adopted. Use short single-trees having the ends protected for work next to the trees to avoid injury by barking them.

For five or six years the orchard may be cropped, but after the trees become of such size as to shade the ground considerably, this may not be profitable and then clean cultivation can take its place. This work may be done principally with the disk and the harrow, using the disk both ways of the orchard to break up the ground, the first time following with the harrow, and after that disk only as often as necessary to keep the ground loosened so that it may be harrowed at least once a week. To work close to the trees without injury, use an extension disk with two horses and when harrowing, the harrow can be spread by using two sections attached to a three horse evener, thus allowing the harrow to run in under the branches of the trees. Cultivation should commence as early in the spring as the ground is in good condition and stop from the last of July

COURTESY OF THE HORTICULTURAL DEPARTMENT

APPLE ORCHARD PROPERLY SPACED, AND WITH CLOVER COVER-CROP

to the middle of August, according to the season, but it should not be kept up too late or it will have a tendency to start a late or second growth and the result may be that the trees will go into the winter with the wood in an unripened condition and then be liable to injury by severe cold. It is well to sow a cover crop of oats or buckwheat at the last cultivation, where clean cultivation is practiced and also in the corn as long as the orchard is cropped. This protects the surface during the winter, prevents the ground from packing and supplies humus to the soil. Care should be taken to clear the ground of all vegetation that may harbor vermin, for two or three feet around the trees, before winter.

PRUNING

Pruning should be attended to every year, thus avoiding the need of pruning heavily at any one time or of removing very large limbs. March is generally the most convenient time for doing this work but it is well to follow this up by looking over the trees in June and remove any water sprouts or "suckers" which may have started to grow and which can then be rubbed off with the hand and so save much work another year. Any large wounds should be painted over. In forming the head of a young tree, from two and one-half to three feet is a good height to start the first limbs. Three or four main limbs are enough and these should not all start out in a circle around the tree as they are more apt to split down and also to form a basin for water to gather in which may finally form a rotten place in the tree.

For protection where rabbits are plenty, use the veneer wood bands or protectors which are offered for sale, or apply whitewash to which some tar or carbolic acid has been added, late in the fall. The rabbits may also be poisoned, shot or trapped. Mice are not usually very troublesome if all trash and vegetation is kept away from the trees. Where they are very plenty, poison wheat with strychnine and place in their holes and runs or under some cover so that it will be out of reach of the birds.

SPRAYING

It is advisable to commence spraying the young trees the first year after setting, spraying twice in a season until they come into bearing, after that three or more times as required. Use the Bordeaux mixture combined with arsenites for each spraying. For non-bearing trees spray the first time about when they are in full leaf, the second, early in June. While the trees are small, a good hand pump in a common wagon will be sufficient but when the trees get large a power attachment to run the pump and a derrick for the sprayers is desirable if not absolutely essential. Good fruit cannot be raised with any certainty without careful attention to spraying and the planting and training should be done with this in view.

GATHERING THE CROP

With the maturing of a crop of apples comes the important work of gathering and for this early preparation should be made. Barrels or other packages should be secured and stored in sufficient quantity so that there may be no delay for lack of them, and a full outfit for carrying on the work should be ready for use. This should include two half-bushel baskets, with bails, for each picker, step-ladders and single ladders, one or more, moveable sorting tables on which to grade the apples, a good supply of bushel boxes having solid ends with hand holes for handling them, but with slat sides and bottoms, a barrel press and of course, hammers and barrel nails. The step-ladders should be 8 feet high and have a wide base and but three legs, the common step-ladder with four legs being unsafe and a nuisance in an orchard. Single ladders may run from 14 to 20 feet. Above the latter height, extension ladders are the most practicable.

When ready to commence picking, the sorting table should be placed in the center of a square of four or six trees and each picker given two of the picking baskets and instructed to turn the apples a little to one side so

AN APPLE HARVEST

as not to pull out the stems and to lay, not drop or throw, the fruit into the baskets and not to place any apples that have touched the ground with the hand-picked fruit. When his two baskets are full he should carry them to the table and empty them to be sorted by the graders who attend to the grading and packing. This work should be very carefully done making one or two grades of the best apples according to the way they run and the market to which they are to be sent. If there is a home market for them or if they can be shipped in bulk to advantage, a No. 2 grade can also be made, otherwise run all but the fancy and No. 1s into cider stock. It will rarely pay to barrel No. 2s or to place them in storage. The bushel boxes will be very convenient for handling the poorer grades. The barrels should be carefully faced and filled with as evenly graded apples as possible. No grower who values his reputation should allow the center of barrels to be filled with inferior fruit. As each basketful is put in, the barrel should be shaken and when filled and ready to head, evened up on top as well as possible and pressed firmly if to be shipped to market or for storage. If not to be shipped or if to be placed in home storage, they may be less firmly pressed, but in any event should be firm enough not to "rattle." It is desirable to keep all drops well cleaned up in the orchard, both on the score of neatness and as a precaution against insects. Apples should never be handled while wet nor exposed to the hot sun either before or after barreling.

STORAGE.

The necessary buildings will depend much on how the product of the orchard is to be marketed. If to be sold outright, in the orchard or barreled, or if it is to be shipped to storage or to commission houses, but little storage room is necessary, but if it is expected to supply the local market or to ship direct to consumers and the retail trade in nearby towns, provision must be made for home storage and possibly some form of cool storage may be advisable, especially if it is expected to hold the fruit for some time, as may sometimes be necessary. The varieties planted will also depend largely upon the kind of trade it is intended to cater to, and to whether it is best to plant summer apples and then a succession through the season, ending with the late keeping varieties or to raise only winter apples.

FORESTRY AND THE PRAIRIE FARMER

By Hugh P. Baker

Department of Forestry, Pennsylvania State College

THE significance of prairie forestry can hardly be appreciated by the resident of a forested region. In nearly all the prairie states of this country, the amount of native timber is exceedingly small and one may wonder what work in forestry can be carried on. Without doubt the land owner and farmer in our prairie regions has greater need for the practice of forestry than the farmer of our forested states. In the latter region, even though the price of good lumber may be very high wood for fuel is usually low in price and there is mining of coal going on, usually close at hand, providing fuel at a reasonable figure. To the prairie farmer wood is an expensive fuel and he does not as a rule have mines upon which to draw for a cheap fuel supply. Again when fence posts and farm repair material are needed, the prairie farmer must send to the Lake States for white cedar posts or turn southward to Tennessee and Kentucky for red cedar or to Oklahoma and Indian Territory for posts of osage orange.

The settlers who first came to the middle west, almost without exception took up farms in or near belts of native timber. These narrow belts

POST TREATING TANK AT IOWA STATE COLLEGE

By this method, immersing the lower thirty-six inches of the posts, the latter may be made to take up from four to seven pounds of oil.

were quickly cut off for the building of the home, for fuel and to bring in a little income by the sale of ties and logs to the railroads, which were building through the region. As the settler pushed out on to the prairies and built his home, he felt the need of protection from drought and winds and planted windbreaks of quick-growing trees, such as the Soft Maple, Cotton wood and Box elder, the seedlings of which he could usually pull from stream banks. These trees gave quick results and served well the purpose for which they were planted, but as they are short lived species they are now beginning to die out and must be replaced either with the same quick growing sorts or something more permanent. The prairie states passed through an era of tree planting some twenty-five to forty years ago and are now beginning to realize the necessity for a second period of tree planting. This necessity yearly becomes more evident because of the rapid and constant increase in lumber values.

PRICE OF LUMBER DEPENDS ON PRICE OF FARM PRODUCE.

This increase in value of lumber is attributed by the farmer to a number of different causes and he often does not appreciate the fact that there has been a very marked increase in the price of his own farm produce. Today he can buy as much lumber for one hundred bushels of wheat or corn as he could ten years ago. There are few who would not rather receive forty to sixty cents a bushel for corn and pay thirty to forty dollars for dimension stuff than to receive nine to fifteen cents per bushel and have to pay only fifteen to twenty dollars for the same dimension material. In following up the range of prices during the past ten years, we find that averages show that the quantities of oats, corn, cattle and hogs, which ten years ago cost $100 would to day cost $174 75 while the quantities of lumber that cost $100 ten years ago would cost to-day but $166.67. To sum up the situation

GROVE OF EUROPEAN LARCH AT IOWA STATE COLLEGE

These trees stand on well drained up-land and are thirty-two years old. Many are of size suitable for telephone poles and railroad ties. Medium sized posts of the same variety can be grown in from nine to sixteen years.

briefly, lumber must advance eight points before it reaches "the trustless altitude of oats, corn, cattle and hogs."

That something must be done, right at home to supply the tremendous need for lumber, fence post and repair material is thus forcing itself upon the residents of our prairie regions. Every resource is being drawn upon to meet the demand. Shade trees about homes and in pastures are being cut. Portable sawmills are making dimension stuff and lumber for barns, corncribs and sheds, from cotton wood and soft maple groves and windbreaks. Added to the need for wood on the home place is the great demand for walnut, hickory, ash and other hardwoods by furniture and vehicle manufacturers. Five years ago hickory was sold at $40.00 per 1000 feet in Chicago. The price for the same grades to-day is $70.

PRACTICAL FORESTRY ON THE FARM.

From a fairly thorough study of the situation there seem to be two solutions which may be worked out by the prairie farmer. There are very large quantities of valuable soft wooded, quick growing material existing to-day in the form of windbreaks and groves on our prairie farms. Could this material be utilized for fence posts it would mean a tremendous saving. A post of soft maple or cottonwood will last, when well seasoned, from two to five years, yet if this same post be thoroughly treated with some preservative it will last as long or longer than the ordinary white cedar post which is being used so extensively to day.

Of the many antiseptic materials used in preserving wood, creosote or the dead oil of tar is the best. While it is expensive it is easily and cheaply applied and will not leach out of the wood as other preservatives will. The better the quality of the oil, as a rule, the better the results obtained. It is entirely practical for a farmer to maintain a small plant on his farm, in which posts may be treated with creosote. Such a plant can be made up of a heavy galvanized iron tank about four feet in diameter and five feet in depth set up on a brick or cement foundation so that a slow fire can be kept underneath. It can be put into active operation at a cost of from twelve to eighteen dollars. In this tank the lower thirty-six inches of the post is boiled slowly in the oil for from six to ten hours. Enough creosote will be absorbed by the post through this method to more than double or triple its life. Experiments have proven that this treatment may be given at a cost of from eight to ten cents per post. There are numerous other valuable preservatives in the form of chemical salts such as the chloride of zinc, but these salts can only be properly forced into the timber by pressure.

Many seek to increase the life of fence posts by merely painting the portion to be inserted in the ground with crude tar. This is good as long as the coat of tar will not peel from the post. Its cost does not seem to justify this practice when for a very little more we may give an effective treatment by boiling, which causes the wood to become thoroughly impregnated with the oil.

The second solution of the problem of wood supply in our prairie states, is the planting of quick-growing trees which will produce durable timber. If the waste portions of the farm can be utilized by this planting, so much the better, but from statistics gathered by the Forest Service during the past three years, it has been found that it is a paying proposition to plant good agricultural land to such species as the Hardy Catalpa, and European Larch for the production of posts. The Hardy Catalpa will not succeed on poor sandy soils, but on good rich soils in Illinois the Forest Service found that the present Catalpa groves of the state would yield an average return of $5.18 per acre. The European Larch is an excellent tree for well drained uplands and in Illinois has given an average return of $4.38 per acre. Ten out of fifteen Catalpa plantations whose products were com-

These trees stand on well drained up-land and are thirty-two years old. Many are of size suitable for telephone poles and railroad ties. Medium sized posts of the same variety can be grown in from nine to sixteen years.

puted, paid more than $4 per acre while two paid $9.35 and $16.30 respectively. Of sixteen Larch plantations examined, ten paid more than $4 while two paid more than $7.

The Osage Orange is a valuable post tree which is hardy through the southern prairie regions and can be made to succeed on locations which would not produce good returns in Catalpa. While two Osage plantations examined in Illinois show an annual income of only $3.12 per acre there are good reasons to believe that with greater care and proper attention to spacing, much greater returns could be obtained. As far as durability is concerned, the Osage Orange is the most durable of our post producing trees. Were it not for the insistent little borer, which is very certain to destroy our Black Locust trees, this species would be the most valuable of our quick growing trees for general planting on the farm.

Trees, like other agricultural crops, require careful and persistent attention, if good results are to be obtained. Actual examination has shown that the species mentioned above will give returns per acre comparable with grain crops and that with little or no care. If an acre or two of right species are planted on every farm and given a reasonable amount of care and attention, the problem of the future supply of fence posts and fuel will be largely solved.

THE RURAL PROGRESS CONFERENCE AT AMHERST, MASS.

By Scott Henry Perky

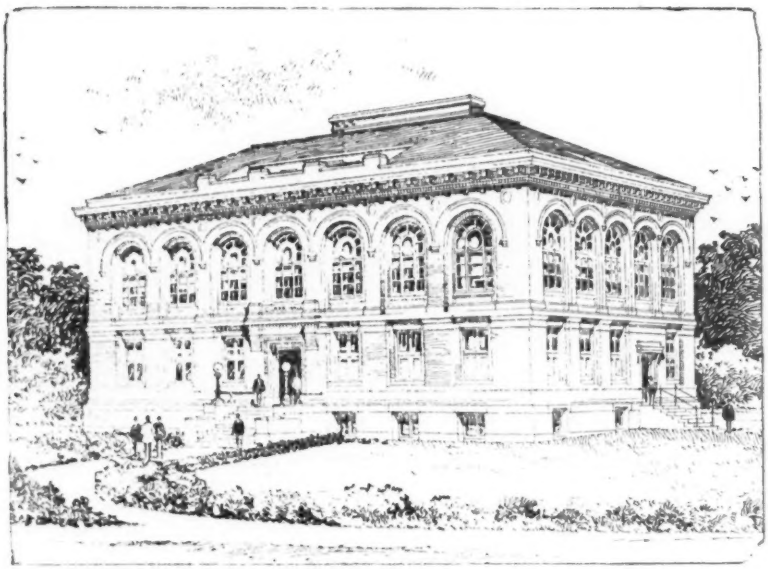
THE celebration of the fortieth anniversary of the opening of the Massachusetts Agricultural College, and the dedication of the handsome new college building, Clark Hall, formed the occasion for a remarkable conference on rural progress at Amherst, Mass., October 2nd to 5th last.

The purpose of the conference was a consideration of the leading problems of rural life. It regarded the farmer not merely as a producer, or as one whose welfare depends altogether on his products, but as one whose first need is a broad and cheerful outlook and love of the country.

The conference proved wholesome and hopeful, almost prophetic, with regard to the future of rural life. It recorded the surprising efforts that are already being made for the social, educational and moral uplift of rural communities, and agreed that more and greater work and a good working cooperation between the different forces are necessary.

On the initiative of its capable young president, Kenyon L. Butterfield, who held a similar conference at the Rhode Island State College last year, the Massachusetts Agricultural College secured for the conference the cooperation of the State Board of Agriculture, the State Grange, the Massachusetts Civic League, the Y. M. C. A., the Connecticut Valley Congregational Club, and the Western Massachusetts Library Association. Thus several important fields of socializing effort were represented.

Aside from the commemoration and dedication exercises, the program consisted, in part, of addresses by N. J. Bachelder, Master of the National Grange, on the Grange and Rural Progress; Dr. A. C. True, on the Broad Outlook of the Agricultural Experiment Stations; President Carroll D. Wright of Clark College, on the Value of Art and Skill in Industry; Professor John Craig, on Cooperation in the Marketing of Fruit Products; Mr. John R. Boardman, of the International Committee of the Y. M. C. A., on The Country Boy in Service; Mr. Henry Turner Bailey, on An Interpretation of the Civic Improvement Campaign in America; Mr. F. W. Rane, on the Forestry



CLARK HALL

The new building for the Department of Botany. Dedicated October 2, 1907.

Situation in Massachusetts; Professor J. E. Rice, on the New Poultry Husbandry; Mr. William R. Eastman, Chief of the Division of Educational Extension, New York State Education Department, on The Public Library as a means to Rural Betterment; Rev. Wilbert L. Anderson, author of "The Country Town," on The New Rural Life; Rev. J. C. Goddard and Rev. F. E. Emrich, on Light on the Problem of the Country Church; Mr. O. J. Kern, of Winnebago County, Illinois, on The New Agriculture in the Country School, and on The Front Line of Country School Improvement; Dr. K. C. Davis, Dean, State School of Agriculture, St. Lawrence University, Canton, New York, on What Agricultural High Schools are Doing; Hon. George H. Martin, Secretary, Massachusetts State Board of Education, on Some English Experiments in Agricultural Education; and several others in connection with the Round-Table of the Village Improvement Department of the Massachusetts Civic League, and the Section Meeting of the Western Massachusetts Library Association.

This long list of names and subjects has been given as the means of most briefly indicating the scope and importance of the conference, which could not otherwise be sufficiently indicated in this short notice.

It was fine to note how important to the progress of rural communities each line of effort regards itself. The grange stands, a very great power, ready to league itself with every trustworthy effort at rural betterment. The agricultural experiment stations are taking an ever broader outlook and ever increasing responsibility in regard to rural progress, and they are confident of splendid results. The foresters see a very direct relation between their science and rural betterment. The speakers on village improvement feel that such effort is an important means of improving rural taste and making farm life more congenial. The Y. M. C. A. has discovered that nearly every country organization is chiefly concerned with adult life, and that the most fruitful

field has been left untouched; and it is now beginning work right out in the country, finding and training leaders, and striving to make life in the country Christian and purposeful for young men. The churches are proud of their sons who have toiled in the rural communities, making sacrifices asked of no city minister, and they are proud of the life centering about them, which has in the past produced so many great men; but they confess to their mistakes and failures and urge the cooperation, or even unity, of rural churches and the best work of the best men for the hope and cheer and evangelization of the open country. The rural school is shown up in all its barrenness and all its possibilities, and the promise is breathed, if not spoken, that the rural school is soon to come to its own in the very fore-front of fundamental education, awakening in the receptive country boy and girl a degree of response only possible where the school can so stimulate their every day lives and at the same time be a continual novelty. The library proclaims that its most difficult and important work is out in the country, and that it is going to do it. Every community will have books to meet its needs and wishes. The library is going to take a leading part in rural betterment and its plans will be constructive and educational. The benefits of cooperation are clearly presented by Professor Craig, and Professor Rice takes up the matter of poultry raising in such a way as to convince his hearers that even in the technical subjects relating to country life a revolution of ideas is taking place and a broader point of view being achieved.

All this is but the first expression of things new and great, which are going to change the face of the open country and perfect the conditions of rural life. It is the beginning of efforts and changes promised years ago by our own director and by him striven for down to this moment.

AGRICULTURE OF OTHER NATIONS—VI

SWEDEN

By A. G. Hammar, '07

SWEDEN together with Norway, forms the Scandinavian peninsula, situated in north-western Europe. Due to the warm Gulf Stream washing the western shore, it enjoys over a large extent a most favorable climate. In fact, the southern half of Sweden has an average temperature equal to that of Central Europe. But the northern regions, on the other hand, are severely arctic in nature.

Agriculture is the main industry of Sweden, though possibly the exportation of timber and the mining industry figure more in foreign markets. Agriculture, however, furnishes a living for more than half the population and has, from time immemorial, gone by the name of "Mother (Staple) Industry." The real agricultural period can be reckoned from the middle of the 18th century, when, through the action of the Government, a general reparceling of the land took place. For many years when war drained the country of its resources, it became necessary to improve and promote general farming. It was of special importance to raise strong, speedy horses for the army, and in this pursuit the Government encouraged and supported to a considerable extent, the smaller farmers who, today, own the greater part of the land. In these days institutions for the advancement of agriculture are many, such as practical, technical schools, Experiment Stations, Agricultural Credit Establishments, Agricultural Societies, etc.

For purposes of agricultural education we may distinguish three types of schools; first the so-called

HAYING IN NORTHERN SWEDEN

"Landtbruksskols," of which there are about twenty-five. These give training in the various kinds of practical farm labor and give, to some degree, instruction in theoretical principles. The pupil, after performing all kinds of (farm) labors for two years, receives the title of "Agricultural Foreman." Since the schools are supported by the Government, the instruction, board and lodging are all given free of cost. In the second class of schools, including about twenty, agriculture is taught as a continuation of the general school course. Instruction is given only during the winter months and in principle these schools are very like the Cornell Winter Courses. They differ further from the first type in that the students must here pay for instruction and provide their own board. Of a higher standard are the Agricultural Colleges of Alnarp in Skåne and Ultuna in Uppland. Candidates for entrance to these institutions must be at least eighteen years old, have had at least one year's practice as farmers, and must possess the preliminary knowledge corresponding to that required by a final examination at a technical high school. The pupil takes no part in the farm work, but merely takes notes from demonstrations. He pays his own board and, in addition, 100 kr. ($26.80) a year for instruction. The degree conferred corresponds to the B. S. A. of Cornell.

With the advance of agricultural methods, machinery has forced its way into Sweden. At first the more complicated implements were imported, especially from America, but of later years home manufacture has attained such proportions that a great export trade has resulted. With the increased use of machinery and power, the demand for hand labor decreased. Formerly, and to some extent still, the farm laborers were the "Tenents" and "Crofters" who, in return for the use of small areas of land, pledged themselves to do a certain amount of work on the "mother" farm. They are now being gradually replaced by day laborers, but though it may be cheaper for the farmer to pay for this kind of labor, it is a serious problem to obtain necessary help during the harvesting season.

Until about 1870 the production of cereals was of chief importance in agriculture, but with the opening of foreign markets, the improvement of implements and the newly discovered value of manuring on a larger scale, came a transition to an era of cattle breeding. Results of this transition are seen in the immense development of farm-stock raising, the exportation of dairy products and the extensive cultivation of root crops which occupy in Swedish dairy farming the place held by silage in America.

The principal breeds of cattle are, the Alpine race, which alone is found in the distant northern regions, and of which the animals are very

A MODEL FARM IN SOUTHERN SWEDEN

small, usually pure white, and admirably suited to the rough highlands; secondly, the Aryshire and Shorthorn breeds are found upon many estates of the central and southern parts of the country. The native Red-and-White breed is spread throughout the central region, while the Lowland cattle have adapted themselves to the plains of Skåne. Finally there exists upon the island of Gotland, a peculiar breed of the same name, native to that district. As a rule the average farmer is a careless breeder, but in recent years a decided change has taken place and improvement both in methods and in the selection of breeds for various districts is very noticeable. The horses of Sweden are principally descended from introduced breeds, though the North Swedish and the Gotland pony are native types. In stony and unarable regions sheep and goats are very common and are of considerable economic importance.

Cereals, the staple crop of the country, though replaced in the south by the dairy industry, are, in the central part of Sweden, cultivated extensively. Great areas of land have been reclaimed by the drainage of wet meadows and the "tapping" of lakes. Through these causes and the increase of labor saving implements the area of cultivated land has increased four times during the 19th century. While rye and wheat are commonly grown, oats are extensively produced and constitute the chief export. The black variety is found to be best for the central region, while the white variety is best suited to the south.

The climate limits the period of cultivation considerably, especially in the north. It is interesting to realize that though the agricultural season is two months shorter in the north than in the south, yet the crops ripen there also. This phenomenon depends on the fact that there, where the days are so long at certain seasons, as to exclude practically any nights, the plants take advantage of the many additional hours of sunshine and thus make up for lost time. The wheat and rye crops are planted in the fall, and the harvesting season is usually rather rainy. To meet this emergency the hay and cereals are placed upon frame-like stands to dry.

A peculiar phase of agriculture in the north is the breeding of rein-deer by the Lapps—who form a nomadic

tribe, a few thousand in number. To these individuals, the rein-deer is indispensable. It drags him across the snow-covered fells in his rude sledge; it furnishes food—both milk and flesh; clothes from its hide and thread for their making from its sinews. The number of these useful animals is, however, rapidly decreasing, there being now but a few hundred thousand.

Though it may be said of Swedish agriculture that it has to a great extent adopted the use of modern methods, yet there still exist in many places cases of primitive, simple farming. Many of the farmers of Sweden, especially in the isolated districts, are conservative and persist in making their own implements, weaving their own clothes, etc. But they are sturdy, energetic and capable, and considering the great strides made in some cases, and the general success and importance of agriculture in Sweden, the country has reason to be proud of her agricultural population.

A LAPP'S "PULKAFARD" BEHIND HIS REINDEER

ETHER AND THE FORCING OF BULBS

By J. Taubenhaus, '08

MANY experiments have been carried on in order to determine the effects of temperature upon the growth of both leaves and flower spikes of etherized bulbs, and to determine whether the etherization takes the place of the resting stage. In the May issue of the *Countryman*, I gave the results of work with the White Roman Hyacinth. Since that time the results of the treatment of other bulbs namely the Spanish Iris, (Belle chimaise), Fresia Refracta Alba and Narcissus Trumpet Major have been arranged, the following being a brief account of the results obtained. The methods employed were similar to those previously explained, the bulbs being etherized upon October 12, '06, and planted after different periods of rest. Group one, immediately; group two, two weeks later; group three, four weeks, and group four, six weeks later.

Name	GROWTH BEGAN								FLOWERING BEGAN							
	Hot House—74° F.															
	Group 1		Group 2		Grp. 3		Grp. 4		Group 1		Group 2		Group 3		Group 4	
	Ether	Check	E	ch	E	ch	E	ch	E	ch	E	ch	E	ch	E	c h
Iris	Oct. 27	Nov. 1	Oct. 27	Oct. 27	*	*	*	*	Mar 9	Mar 14	—	—	—	—	—	—
Fresia	Oct. 17	Oct. 17	Oct. 27	Nov 7	*	*	*	*	Jan 29	Feb 2	Jan 18	Feb 5	Feb 12	Feb 25	Feb 21	Feb 25
Narcissus	Nov. 20	Nov. 27	*	*	*	*	*	*	Feb 9	Feb 15	Jan 30	Feb 5	Jan 24	Jan. 24	Jan. 18	Feb 2
	Cold House—54° F.															
	Group 1		Group 2		Grp. 3		Grp. 4		Group 1		Group 2		Group 3		Group 4	
	Ether	Check	E	ch	E	ch	E	ch	E	ch	E	ch	E	ch	E	ch
Iris	Nov. 1	Nov. 7	Oct. 27	Oct. 27	*	*	*	*	Mar 22	Mar 23	Mar 22	Mar 23	Mar 22	Mar 23	Mar 22	Mar 23
Fresia	Oct. 18	Oct. 19	Oct. 29	Nov 10	*	*	*	*	Feb 18	Feb 19	Feb 17	Feb 19	Feb 16	Feb 19	Feb 22	Feb 27
Narcissus	Dec. 5	Dec. 10	*	*	*	*	*	*	Feb 11	Feb 11	Feb 11	Feb 11	Feb 7	Feb	Feb 5	Feb 7
	Medium House—70° F.															
	Group 1		Group 2		Grp. 3		Grp. 4		Group 1		Group 2		Group 3		Group 4	
	Ether	Check	E	ch	E	ch	E	ch	E	ch	E	ch	E	ch	E	ch
Iris	Oct. 28	Oct. 28	Oct. 28	Oct. 28	*	*	*	*	Mar 23	Mar 26	Mar 9	Mar 11	Mar 9	Mar 11	Mar 6	Mar 8
Fresia	Oct. 17	Oct. 17	Oct. 27	Nov 7	*	*	*	*	Jan. 30	Feb 3	Jan. 18	Feb 7	Feb 9	Feb 15	Feb 9	Feb 15
Narcissus	Nov. 20	Nov 29	*	*	*	*	*	*	Feb 12	Feb 14	Feb 9	Feb 9	Jan. 18	Jan. 18	Jan. 24	Jan. 24

*Indicates that germination started outdoors before forcing began.

In contrasting these tables we see that for the Spanish Iris, the first to bloom was group four etherized in the "medium" house. This shows, that apparently the Spanish Iris needs a rest of six weeks. In the cold house the same is affirmed. In the hot house only group one succeeded in blooming, while the remainder failed, the cause being probably a fungus disease.

In the Fresia, we see that group two etherized in both the hot and the medium house were first to bloom. This serves to show that the Fresia needs to be rested two weeks, and is also evident in the cold house.

With the Narcissus, group three in the medium house and group four in the hot house are first to bloom. This apparently indicates that when forced in the hot house, the Narcissus needs six weeks of rest and when in the medium house only four weeks. In each case of the Spanish Iris however, and in whatever house or group, the etherized bulbs bloom earlier than the check.

Figure A contrasts the advanced stage of group four, etherized in the medium house to that of the check. This is the same with all the other

FIGURE A

groups in the three different houses. Figure B illustrates the same for the Fresia, showing particularly great contrast in the foliage.

Concerning the growth of the bulbs, the etherized seemed at first to have the lead, but gradually the check bulbs caught up. The persistent difference was in the flowering spikes of the etherized bulbs, which were longer than the checks.

From what we have seen, we can conclude that the ether seems to improve the quality of the flower and its spike. It seems also to hasten the flowering period from two to eight days; that a medium house is more desirable than a hot house, because it saves us fuel and the results are almost similar in bulbs. Etherized bulbs need a rest of from two to six or more weeks. The lapse of time depending on the different kind of bulb as no two kinds show the same result. The influence of the ether is apparently not to take the place of the resting stage of the bulbs, but is either a chemical action, or of a physiological nature.

EDITOR'S NOTE—This article is offered as a supplement to that published in May, 1907, upon similar experiments, with the idea of presenting the different actions of various bulbs under the same treatment. These studies were likewise pursued under the direction of Professor Craig, as Course 29 in Horticulture.

FIGURE B

SOME BIOLOGICAL ASPECTS OF AGRICULTURE

I—INTRODUCTION

By Vaughan McCaughey, '08

THE science of agriculture is like a stained glass window. It is essentially composite. Its highest development is attained only through the most perfect harmony of many distinct parts. In the window these parts are the bits of colored glass, in agriculture they are environment, the knowledge of arts and sciences, personal character. The good farmer has practical knowledge in diverse fields—natural science, economics, law, commerce, engineering. He has traveled many pathways, he is rich with a varied multitude of harvests. Thus, unlike other vocations, sharply demarcated one from another,—as law, medicine, engineering,—good agriculture is dependent upon the correct blending of many occupations. For this reason agriculture, in its broadest meaning, is the most difficult of arts, and the truly successful farmer,the rarest of men.

The science of agriculture is like an Oriental rug, the surface of which is crowded with intricate designs, apparently no two of them alike. A closer investigation shows, however, that these varying patterns are all made from one stuff, they are all of one woof. So agriculture, notwithstanding its compound nature, is primarily biological. Its fundamental interest is Life. All of its problems are ultimately concerned with plants and animals. The farm is really a practical biological laboratory, and the farmer's basic knowledge is that of life processes.

Agriculture includes, it is true, many "non-biological" studies—those of the atmosphere, the soil, etc. These are important, indeed necessary, and may seem, at first thought, to be of equal value with the strictly biological sciences. But a more careful inspection shows that these geologic, physical, and economic sciences are of value to agriculture only in so far as they relate themselves to the biology of agriculture. The farmer's interest in a soil is not that of pure geology, but of the plants that he wishes to grow. His knowledge of physics is along the lines of well ventilated barns for his cattle, and the best plow for his potatoes. His appreciation of the Weather Bureau depends largely upon its aid to him in planting and harvesting his crops. The more minutely we investigate the innumerable ramifications of this complex art, the more strikingly is impressed upon us the idea of agriculture as primarily the care-taking of plants and animals.

The imperative need for accurate knowledge of plant and animal life has never been so keenly realized as at the present time. "Scientific farming" is the inevitable result of the increasing crystallization of farming into a strictly business enterprise, and the concomitant increasing competition. Investigations are being made, and studies are taught, that a score of years ago were scarcely dreamed of. The laws governing climatic and atmospheric conditions; the true nature of the soil, and its relation to plant life, the principles of seed selection and germination; the best methods for preserving farm products during the period between production and consumption; the laws of forestry; the geographical and climatic adaptations of crops; the selection and breeding of plants and animals; the principles of the feeding of animals; the complicated relationships between different organisms; all these belong to the Modern Epoch of Agriculture.

It is clearly evident that agriculture is an art of many aspects, it is no less evident that these many aspects all look to a common biological center, and that among the most important problems of today, are those that have to do with the biological basis of agriculture.

A SUMMER'S WORK ON THE UNIVERSITY FARMS

By E. W. Leland, '07

THE question is sometimes asked by the students in our college whether it would not be better for one desiring to learn practical farming to work during the vacation on the University farm instead of in the country. Since I have spent two summers on the University farm and have also worked at various times for two or three different farmers, my experience may, perhaps, be of interest.

The following account of what I did this summer on the experimental plats will show what can be gotten from such work. A considerable part of my time was spent upon some experiments carried on with root-crops. The work which I did in thinning, hoeing, weeding and finally harvesting the plants, enabled me not only to get some practical experience as to how to grow roots, but also allowed me to observe the experiments from their beginning to their completion. I could see the effects of different mixtures of commercial fertilizers upon the growth of the crop and the results of various methods of planting and thinning. Beside all this I learned something of the principal varieties of sugar beets, mangels, rutabagas, turnips, and carrots and had the opportunity to compare the different varieties as to manner of growth and yield.

By far the largest share of the work however, was upon the timothy experiment, said to be the largest in the world, which the Experiment Station is running through a series of years. I think I am pretty well acquainted with how such an experiment is carried on, for I have helped with nearly everything concerned with the practical part of it from the beginning to the present. I planted the seed in the flats, marked out rows, set out young plants and then kept them free from weeds. With the old plants I took down the date of bloom, made descriptions of them and finally helped in the harvesting and labeling.

I also spent considerable time in caring for the grass garden, as it is called. This is the large collection of grasses which are grown for exhibition and classroom use. The work here consisted of hoeing, weeding, harvesting and threshing for seed the various grasses, many of which I had never seen before, and was nearly as instructive as the same time spent in a laboratory and in some respects more so, for I had live plants to study instead of dried specimens.

The clover experiment likewise proved very useful in the same way and enabled me to learn something about a subject of which I knew very little. In fact the whole summer's work, though at times monotonous and even very disagreeable, was interesting and instructive for any one intending to follow experiment station work.

On the other hand, I have found that whether one works simply on the experiment plats or on the general farm this is not the best place to get a practical knowledge of farming. The first reason is that on account of the experiments being carried on and work done for the sake of instruction the University farm cannot be run on a paying basis, and a paying proposition is just what is wanted for study. In the second place, a student on the University Farm is not given opportunity to run machinery, take care of teams and do those things which must be learned and which a farmer generally requires of his help.

A NEW ELECTIVE LECTURE COURSE

By M. P. Jones, '08

THE supplementary lectures before the College of Agriculture will this year be given under the auspices of the Agricultural Association. In taking the responsibility connected with these lectures, the association has assumed an important task. If properly conducted and attended, they will mean much to the association, first, in that which is of primary importance,

namely, an increased strength among the students of the College and secondly, in an increased reputation and influence outside of Cornell. It should mean a closer relationship between the students who are the College of Agriculture and the the people who own it. The duty of bringing the farmer and the College together belongs to the faculty, alumni, and students, but until recently the students have taken no organized part. Through the Agricultural Association and the Extension Work the students are now offered a share in this work.

The practical value of these lectures lies in the opportunity offered the members of the Association to become acquainted with the ideas of some of the leaders in agriculture and to meet them personally. The meetings will be so conducted that the students may ask questions or give their own views. Lectures by members of the Experiment Station staff and by members of the University faculty will be given from time to time.

It is realized, however, that while the Agricultural Association meetings must not constitute an elementary course in public speaking, they must not, on the other hand, degenerate into a mere series of lectures or approach too nearly to an Institute. With this in view, then, there will be debates and talks by students as of yore. The student speakers will be those who can bring something worth while before the members of the Association, and surely this organization has a right to expect the best from the best men. The course in Extension Work will doubtless bring out men of the proper stamp. It is hoped too, that the students will again give some original performance like last year's successful Mock Trial. The glee clubs will be called on frequently to furnish entertainment.

This, then, is something of the policy of the association for the coming year. Its responsibilities are much greater but if these are met the usefulness and influence of the association will be correspondingly increased.

THE MUNICIPAL ABATTOIR

By J. Demary, Sp.

FROM the time of the first settlement of the country, up to the beginnnig of the 19th century, the demand for meat was met by the local supply. When, in 1805, the first beef cattle were driven across the mountains, they formed the van guard, of the millions of animals that have since rendered the great packing centers both famous and infamous. The Eastern farmer had no show against the ever increasing supply of free pasture afforded the ranchmen, by a generous Government, and his economic displacement as a producer of meat, followed as a matter of course, Many Eastern states suffered a great loss of valuation and in population as well. In the last decade, there has been a reaction Westward, caused by the homesteading of the ranches, and the question of producing live stock in the older states, has assumed a more hopeful aspect. The marketing of the product has been placed on a different basis, by reason of the long control of this matter, by the great packing houses. They have reduced the wastes of packing, but in turn have rendered the local retailer dependent upon them, for his daily supply, and in some cases have compelled him to use their products, or go out of the business. This has led to the abandoning of the local slaughter houses, and the handicapping of the market thereby.

With the present conditions, has been raised the question of the sanitation of these older buildings, and whether in the future there should not be some public supervision of such structures. From the point of good health, there is no reason why diseased animals of any sort, should be used for human food, though man is able to stand a good deal, and there is great need of a rule, that shall prevent some of us from poisoning the rest of us. Let it be supposed that every incorporated village or city of from 3000 to 15000 inhabitants builds a public abattoir, located in a place

convenient to the community, but not where the operations will be conspicuous ; the building to be constructed of concrete or enameled bricks, so that it will be sanitary, and easily cleaned, of one story with high placed windows and skylights. Let it be divided off so that rooms for storage can be leased for moderate rental to the local butchers, and machinery installed for use in slaughtering. Furthermore let it be supposed that no animals shall be killed within certain limits, unless in this public building.

For the further protection of the public health all animals slaughtered in the building should be first inspected by a veterinarian in the public service, and all diseased ones condemned, and rendered unfit for food. There is no reason why such a plan would not be workable.

The local butchers would have the advantages of combination, without personal competition, and be able to handle local meat with less regard for the injured feelings of the Chicago wholesalers ; the farmers would be able to sell more animals, since the latter could be more readily slaughtered ; the public would have another safeguard provided against diseased meat ; and the municipality would be benefited by the money kept in local circulation. It is not assumed that an expensive structure be provided, but one that shall furnish the accommodation suggested, and serve as an aid in the transmission of the products of the farm, to the consumer, without their value becoming impaired.

The Cornell Countryman

E. L. D. SEYMOUR, Editor
M. C. BURRITT, - Alumni Editor
W. H. ALDERMAN,
A. W. McKAY, - Associate Editors
E. L. BAKER.
E. G. McCLOSKEY, - Business Manager
S. F. WILLARD, JR.,
R. H. DAYTON, - Assistant Managers
G. H. MILLER.

NOVEMBER, 1907

Board Changes

UPON the resignation from editorship of H. H. Schutz, '07, in the last of September, a vacancy was left in the editorial board. Since the October number was issued, this vacancy has been filled by the election of E. L. D. Seymour, '09, to position as Editor, M. C. Burritt, '08, being at the same time elected Alumni Editor. This action leaves, however, another vacancy which will be filled during the winter by competition. Though, in itself, this is sufficient reason for energetic rivalry, there are further opportunities offered to this year's competitors. It has been, and is, the earnest desire of the *Countryman* board to institute a regular system of progression, an advance, by successive steps, from freshman competitor to senior editor. Since three members of the present editorial board graduate at the end of this year, the outlook for the successful initiation of this system is bright, and its actual success depends mainly upon a high standard of competition during the ensuing months. Similarly, it is hoped to fill the business board by the same methods, so that there too, are openings for those desirous of that kind of experience. We therefore urge those members of the junior and sophomore classes, as well as freshmen, who are at all interested in magazine work, or who desire to become interested, and to acquire valuable and enjoyable training, to enter the competitions at once, and gain the advantages offered by an early registration. To those who have not thought about the subject, we should be glad to explain the work and the duties of competitors as well as to point out the available benefits which accompany the work on the board.

Still Increasing

ON October 4th the registration of regulars and specials was, as compared with that of last year:

	1906–7	1907–8
Regulars	127	192
Specials	118	123

These figures are of course but partial, as at that time, data as to graduate students, and the division of the members into the various classes had not been procured. Nevertheless the fact remains that in the number of regulars and specials alone, there was an increase of 70 over the previous year. This increase in itself may not seem astonishingly large, but it signifies the uninterrupted growth of the College of Agriculture and its increasing importance and influence. It is hoped that in a short time a more complete and comprehensive series of figures may be offered, giving a clearer and more convincing idea of the progress of the college along this line.

Red and White Tape

WITH this increased registration and the accompanying possibilities for mistakes and confusion, came the necessity for a further systematizing of the process of registration, with results which may have surprised the student of past years. But the slight, if not merely suppositional inconvenience, caused by the increased "red tape" has been more than offset by the actual advantages, besides the improved arrangement of offices and methods of entering and leaving them, in the new buildings. Moreover, the introduction into this college of the faculty-advisor system has obviated many difficulties and has proven a source of much help to the students, whose schedules under the changes and increase of courses in the college, may have seemed even more complicated than did the arrangement of their freshman year, for the first week or two. The *Countryman* wishes to express its hearty approval of the institution, as well as its appreciation of the advice and assistance rendered, by those faculty advisors at one of the times when their regular duties are heaviest and when the organization of classes adds its cares and complications.

The Meaning of the Honor System

ON October 1st, a large number of freshmen signed the articles of the Honor System, and as the signatures of last year still hold, the System has, according to its by-laws, been again put in force in the College of Agriculture. All those new students who attended the first Association meeting are now familiar with the cause, aims and nature of this measure, and by signing it have signified their approval and their intention of supporting it in the interests of the college and the student body. For those who have till now failed to become acquainted with it, we will repeat that the Honor System has been adopted as a prevention of the practice of cheating in university work, and to arouse in the *entire* college a spirit of squareness, a revulsion and hatred against any phase of cribbing, so that the system shall become one in name only, but shall cast its influence over every student. Where the system has been in force and is located in the hearts of all old students, those entering for the first time will find it of greatest help and benefit and it is their duty to themselves and their fellows to realize its meaning and worth at once.

When being first considered, the idea aroused some opposition upon the grounds that the reporting of offenders would lead to the development of a mean, tell-tale spirit. But this, it seems, is an incorrect view of the matter. Those men and women who have a strong, healthy contempt for the cheat, who are full of ambition to remove from their college all possible causes for discredit and the disapproval of the world, who appreciate the honor, the gratification of being known for uprightness, strength and truth, will find no cause for misunderstanding, no chance for the creation of unworthy thoughts, in denouncing and bringing to light those characters which are too low, too despicable, to be part of our college.

"Music hath Charms,"

AND, moreover, is a most enjoyable addition to the Assemblies, Banquets and other functions of the college, as has been clearly shown

in the past. It is, therefore, all the more necessary that a successful and enthusiastic Glee Club be maintained this year. This is one of the college activities in which much can be done with the actual expenditure of less time than many other forms of expression of college spirit require. Its existence, furthermore, is a benefit, at least a gratification and pleasure to many more than those who compose it; and its success reflects itself upon the college. It has been said elsewhere, that the College of Agriculture is unique in having a Glee Club of its own. Let us show our appreciation of that fact and going further, and putting our energies into efforts to support and advance it, give cause for the additional statement that "the College of Agriculture possesses a Glee Club worthy of any college and of many a university itself."

Volume IV

THE index to Volume IV of the *Countryman* will shortly be placed in the hands of the printer, and will be published as a supplement to the December issue. It will be in the same form as that published in January, 1907, consisting of both a subject and an author index. It had been planned to offer a complete index of the first four volumes of the *Countryman* at this time, but judging that the majority of readers would have already bound Volumes I, II and III together with their combined index, it was decided to publish that to Volume IV separately. The index will be sent free of cost to any subscriber, provided the request is received by November 10. There are at hand a few copies of the index to the first three volumes which may be procured in the same way.

MEN NEEDED

THOSE TRAINED BOTH IN AGRICULTURE AND IN VETERINARY SCIENCE.

The Editor,
The Cornell Countryman:

Recently, in the course of a large correspondence with the officials of the State Experiment Stations throughout the country, for the purpose of obtaining data for a report to be made before the American Veterinary Medical Association at Kansas City this summer on the subject "What the Several States are Doing for the Furtherance of Veterinary Intelligence and Education," I have become more impressed with the need for men, as investigators, who have been trained thoroughly both in General Agriculture and in Veterinary Science. In several instances appeals have been made to me to recommend for positions men who are "competent to deal with questions relating to feeding, breeding and to carry on investigations of diseases of domestic animals." A letter to Doctor V. A. Moore, Professor of Comparative Pathology and Bacteriology in Cornell University, brings out the fact: that men widely and thoroughly trained in all the branches of the Agricultural Sciences usually grouped under Animal Industry, as well as in Veterinary Medicine, and therefore competent to undertake investigations in comparative pathology as well as in animal industry, as commonly understood, are hard to find. Indeed a number of positions of the kind, offering themselves, have had no candidates, though the minimum stipend would be $1,000, per annum, and the maximum perhaps $2,000 or more.

There are possibly two reasons for this—both of them having a financial root—the fact that a longer time than four years must be spent in preparation for the positions, while the remuneration offered at the Experiment

Stations for the beginner in scientific investigations is insufficient to attract men. Yet there are men with a passion for this very kind of work. Cornell has had a number of them and will have more—men who have studied deeply both Agriculture and Veterinary Science and have later obtained both fame and fortune. Witness Drs. Cooper, Curtice, Kilbourne and Leonard Pearson, all Cornell men. To such men who can prolong their four years to six years, taking degrees both in Agriculture and Veterinary Science, the future has in store something more than the remuneration at the start would seem to indicate. The wisdom of preparation in both branches of learning, sister branches as they are, is apt to be justified by its ultimate profit to the man who is at once an agriculturist and a veterinarian.

D. ARTHUR HUGHES,
Inspector, Subsistence Dept.,
U. S. Army.

GENERAL AGRICULTURAL NEWS

The New York State Association for the Promotion of Agricultural Science and Research, held its annual meeting in the auditorium of the Agricultural Buildings on the afternoon of October 8. Former president M. H. Olin was in the chair and the meeting was made brief and to the point. The election of officers resulted in Mr. F. D. Ward, of Batavia, becoming president, and Mr. J. D. Jaquins, secretary, succeeding Mr. T. B. Wilson in that office.

In the evening the members of the association met the students at a special meeting of the Agricultural Association, and gave them the benefit of short talks and opportunities for informal discussion.

* * *

The Syracuse Chamber of Commerce has issued a call for a convention to consider the agricultural condition of New York State, to be held at Syracuse, October 23rd, 24th and 25th. This call has been widely spread in the state by means of a small circular, which, after quoting census figures to show the decline of New York Agriculture urges all interested to attend the meeting especially farmers themselves. The problems to be discussed will be those of Labor Rates and Transportation, National and State Legislation, Markets, Education, Loans and Taxation, etc. Hon. James Wilson, Secretary of Agriculture will address the meeting.

* * *

Announcement is made that the United States Government will open to settlement during the next twelve months, 4,910,000 acres of timber, agricultural and mineral land in eastern Washington, northern Idaho, western Montana and South Dakota. This tract will provide homes for 30,000 families and will mark the most important era in the development of the Northwest since the first railroad was opened there. After government agents have assigned the Indians their allotted portions, the land will be disposed of by lottery tickets, the fortunate man paying the value of the land at from $1.25 to $4 per acre.

* * *

The *Scientific American* of October 5, makes note of the death of Professor W. O. Atwater, late head of the Department of Chemistry at Wesleyan University. Professor Atwater was Director of the Office of Experiment Stations from 1888 to 1891 and has since done valuable work in the nutrition investigations carried on by the United States Department of Agriculture. He was joint inventor of a calorimeter for experimenting upon metabolic changes in the human body and produced many articles upon subjects in physiological and agricultural chemistry.

* * *

The California Board of Trade has issued a double report for the years 1905–06. It is called Resources and Possibilities of California. Statements

of quantities of various products of the state are included, making a valuable report agriculturally as well as industrially.

* * *

Dr. Carl W. Gay, Associate Professor of Animal Husbandry in the University of Ohio, has been appointed Professor of Animal Husbandry in the Veterinary Department of the University of Pennsylvania. He will also have charge of the administration of the stallion law of Pennsylvania. This law becomes effective the first of January 1908; it is modelled after the plan of the stallion law that is in operation in Wisconsin.

* * *

The *Scientific American* of September 21st contains a communication from Cape Colony, South Africa, offering a prize of $500 for a successful lucerne cultivator.

* * *

On October 10–19th, the Greater National Dairy show was held in Chicago at the International Amphitheatre, Union Stock Yards. Leading creamery operators, breeders of pure bred cattle, dairy farmers, milk dealers and poultry and egg shippers from all parts of the country from Maine to Oregon and California, were in attendance. The National Corn Exposition met in Chicago at the same time.

CAMPUS NOTES

The department of Plant Pathology has just completed some very interesting exhibits at five fairs, including the State fair. It is planning to make this a permanent feature of its work and hopes eventually to exhibit at all of the important fairs of the state each season.

* * *

Professor Wing and Assistant Professor Harper returned recently from Ohio with a fine pair of 4-year old grade Belgian draft horses, weighing 3,500 pounds. They will be used both for study in the Animal Husbandry Department and also for general farm work.

The trees have been removed from the north orchard by the horticultural department, and plans have been made for starting a nursery there.

* * *

Several improvements have been made in the Poultry Building, greatly increasing their efficiency and convenience. A steam heating system has been installed in the basement, the feed bins and cooking apparatus have been more satisfactorily arranged and improvements have been made in the laboratory. The whole plant will be connected with the general sewage system for the Agricultural buildings.

* * *

Professor Wing was chosen as one of the judges of stock at the Ogdensburg Fair, during October.

* * *

Professors Craig and Judson attended the meeting of the Pomological Society at Norfolk, Va., on September 24–25. Professor Judson spent some time investigating the truck and vegetable resources of the vicinity in the interests of his class in olericulture.

* * *

An appropriation of $2,000 of the general state appropriation, has been set aside for the erection of new poultry houses, for purposes of instruction.

* * *

At the joint meeting of the Society of Horticultural Science and the American Pomological Society, held recently at Norfolk, Va., Director Bailey resigned the presidency of the former organization and was succeeded by Mr. W. A. Taylor, of the Division of Pomology at Washington.

* * *

Mr. W. H. Griffiths, who last year was gardener in the Horticultural Department has registered in the college as a special student. Mr. More, of the Royal Gardens at Kew has been appointed to succeed him.

The Department of Horticulture has been carrying on extensive experiments at Romulus for the control of Black Rot of grapes. The experiments involve a little over ten acres and very good results have been obtained from spraying.

* * *

Messrs. E. Wallace and O. S. Morgan have been carrying on orchard survey work in Orange County for the Horticulture Department. This is the beginning of a survey of the Hudson river region.

* * *

The publication of the Junior Naturalist Monthly has been discontinued by the College of Agriculture. Another publication, the *Cornell Rural School Leaflet* has been substituted in its place with Miss Alice G. McCloskey as editor and Professors G. F. Warren and Charles H. Tuck as advisors. The new publication promises to be a successful one and will without doubt be appreciated by teachers in the rural schools of the state. Director Bailey in his article, *The Point of View*, published in the September number, states that the purpose of this leaflet is to aid the teacher in the rural school to work out the practical daily problems of teaching agricultural subjects. In connection with this leaflet a supplement is published in the interests of the pupils. Each month the latter are asked to prepare a composition on some one of the subjects found in the leaflet and to forward them to the University. During the past year the Junior Naturalist Monthly was sent to 18,966 children in New York State, and in return 20,115 letters or compositions were received. These compositions covered a wide range of country life subjects. In addition to these, copies of the Leaflet were sent to about 3,000 persons, including teachers. Hundreds of teachers applied for the leaflets after the fund which provided for their distribution was exhausted. From these figures it can be seen that a great deal of benefit is being derived from the nature study department through these leaflets.

* * *

Dr. Webber has gone South to complete his work in cotton breeding and investigations for the Department of Agriculture. His work will be confined chiefly to South Carolina. After completing these investigations Dr. Webber is going to Florida to look after his work in relation to tropical fruits. He expects to be gone during the month of October.

* * *

The College of Agriculture has engaged a painter and decorator by the year, beginning October 1, to keep the buildings, floors and furniture of the new building in good condition. He will work permanently for the college.

* * *

Mr. M. B. Cummings has been appointed Assistant in Horticulture, and will give instruction to the Winter Course students. Mr. Cummings received the degree of B. S. A. from the University of Vermont in 1901. From 1902 to 1904, he was Assistant in Horticulture at the University of Maine, and in 1904 received the degree of M. S. A. from that institution. He was then appointed Instructor in Botany which position he held until the close of the last College year. During the summers of 1904 and 1906, Mr. Cummings was a student at the Brooklyn Institute of Arts and Sciences, and for the past two months has been engaged in the horticultural survey of Niagara County. He has registered for the degree of Ph D., at Cornell, taking his major credit in Pomology.

* * *

To stimulate interest in debates between the various Winter Course clubs a cup, to be known as the James W. Morrison Inter-Winter-Course Debate Cup, has been donated to the College of Agriculture. The cup will remain for one year in the pos-

session of the departmental club winning it, and will have engraved upon it each year the names of the successful contestants.

* * *

On the evening of Tuesday, October 1, the Agricultural Association held its first meeting of the year—and also the first in the new buildings—in the auditorium. The attendance was exceptionally good and besides suggesting an active, enthusiastic entering class, augurs well for succeeding meetings. M. C. Burritt, '08, president of the associations introduced the speakers, the first of whom was Dean Bailey, who gave a clear and comprehensive talk upon the position, responsibilities, and opportunities of the association—together with an outline of the relations that should exist between it, the students and the college. Brief explanations of the various college activities—the *Countryman*, the Glee Club and the Honor System were then given by E. L. D. Seymour, '09, P. O. Wood, '08 and W. H. Alderman, '08. After a short business session, the meeting adjourned to give the new students a chance to join the association and to sign the articles of the Honor System in accordance with the rules.

* * *

The initial Assembly of the year was held on Thursday evening, October 3, in the auditorium of the Agricultural building. The program was limited to the usual talk by Dean Bailey, but was nevertheless, as expressed by the chairman, "a fine one." Immediately after this part of the evening, the members of the three upper classes assembled in different rooms to elect the members of the Committee on Student Honor—as provided by the articles of the Honor System. The election resulted in the following committee.

Seniors—E. H. Anderson, P. O. Wood, C. Lounsbury.

Juniors—R. H. Wheeler, E. L. D. Seymour.

Sophomore—V. J. Frost.

Following the business session the usual social hour was enjoyed in charge of a reception committee, composed of Mesdams Bailey, Stone, Rice and Charles Wilson, assisted by Messrs. Anderson, Arnold, Shepard, Chase and Young.

* * *

M. C. Burritt, '08, has been appointed assistant in Agronomy, and W. H. Alderman, '08 in soils.

* * *

Miss Ethel B. Gowans, who has been on a leave of absence from the Hampton Institute for two years has resigned her position there as Instructor and having already completed a special course in Agriculture at this University, will now enter the regular course which she expects to complete this year. She intends to then work for a Master's degree, her work being chiefly confined to the Department of Plant Pathology.

* * *

The various Departmental Clubs of the College are now affiliated with the Agricultural Association to a certain extent, and are under the control of a board of directors. This board is made up of the President of the Association, two members of the Association, elected by that body, and one member from each Departmental Club.

FORMER STUDENTS

'02, M. S. in Agr.—Miss Julia E. Roger's present address is Teneck road, Englewood, N. J.

'02, W.—Henry Truckell was married on April 17, 1907, to Miss Pearle M. Robbins, of Lacona, N. Y. Mr. and Mrs. Truckell will reside at Vorden, California.

'03, B. S. in Ag.—H. A. Hopper has resigned his position as Assistant in Dairy Husbandry in the University of Illinois, and has been appointed Assistant Professor of the same subject in Purdue University, Indiana.

'03–'04, W.—F. B. Sawyer is now employed on the Tarbell Farms at Smithville Flats, N. Y.

'04–'05, W. P.—Osborne E. Britton was married April 27, 1907, to Miss May Marie Brownell at Syracuse. Mr. Britton is running a very successful poultry farm near Syracuse.

'04–'05, W. P.—C. L. Opperman is poultryman at the Maryland Agricultural Experiment Station, College Park, Md.

'05, W.—Walter G. Phillips is working on his father's farm at East Bloomfield, N. Y. The principal crops he grows are beans, corn and oats, and he also goes into live stock raising quite extensively.

Ex.–'05 (for Ph. D.).—Professor T. C. Johnson, head of the Botanical department of the West Virginia Station, was married August 28, 1907, to Miss Laura May Boughton of Norwalk, Ohio. While in Cornell, Professor Johnson was elected the first editor of the *Cornell Countryman*, but never served; the editorship devolving upon Professor Warren who was originally elected business manager. Professor and Mrs. Johnson will be at home at Norfolk, Va., after November 1st.

'05–'06, W. P.—A. E. Boicourt is now assisting in the Poultry department at Cornell University.

'06, B. S. A.—C. W. Mann has been working on the soil survey in North Dakota and Idaho during the summer. Mr. Mann has been making a survey of the reclamation tracts of those states. This work is being done coöperatively by the Bureaus of Soils and Plant Industry.

'06, B. S. A.—M. W. Evans has had charge of field investigations in Washington, Idaho and Oregon during the summer. His address for the coming winter will be Washington, D. C.

'06, B. S. A.—John Barron is the author of a bulletin, which has been issued by the Pennsylvania Station, "Varieties of Wheat in Pennsylvania."

'06, B. S. A.—G. W. Tailby, Jr., who has been with the Bureau of Soils since graduation, returns to Cornell as Stockman and Instructor in Animal Husbandry.

'06, M. S. A.—C. J. Lewis is Horticulturist at the Oregon Agricultural College. The announcement in the *Countryman* of last May to the effect that he had accepted a similar position at Washington was incorrect.

'06, W.—W. G. Crumb has accepted the position of Superintendent in the Poultry Department at Cornell.

'07, Sp.—W. W. Basset is Assistant Superintendent of the North Florida Pecan Co., of which Professor Craig is President. Mr. Basset has direct charge of the company's farm of 1300 acres at Monticello, Florida, and is at present engaged in erecting barns and other buildings on the plantation, and in preparation for the winter and spring, planting and setting out operations.

'Ex.-'07.—Miss V. R. French intends to return to Cornell during the second term to complete her course, and will probably register for a Master's degree the following year.

'07, B. S. A.—Harry H. Schutz, who was elected Editor of the *Countryman* last spring, has returned to his home in El Paso, Texas, where he expects to take up practical farming at once. He has registered for a Master's degree *in absentia* and will conduct experiments for his major work, on the farm during the next two years. During the summer Mr. Schutz visited England, Norway and parts of Germany and Belgium, returning to Ithaca in the fall where he got out the October issue of the *Countryman*, before being compelled to resign his office.

'07, Sp.—A. C. Spencer left for the Channel Islands shortly after the close of the college year, and spent most of the summer in Jersey, Guernsey and Holland, studying the various types of dairy cattle. Since his return he has been at his home in Fayetteville, and has recently been appointed Official Tester for the Dairy Department.

" If you get it from us it's right "

BUTTRICK & FRAWLEY

One Price Clothiers and Furnishers

Offer unusual advantages to students. Our Clothing is manufactured for us to conform to the requirements of the college man by the best makers in the cuuntry, and is sold at bottom prices. Same price to students and town people. **Suits from $10 to $30.** We make to measure at a saving of 30 per cent. to 50 per cent. over the exclusive tailor.

Hats, Gloves, Shirts, Sweaters, Hosiery, Underwear, Slickers

in fact everything in furnishings in keeping with our high standard of Clothing.

" If not we make it right " **118 East State Street**

ALL REQUIRED TEXTS IN AGRICULTURE

used in Cornell and **many special reference books** recommended by the department **are carried continually by us** and **sold at the lowest allowed prices** as regulated by the publishers.

Send us a mail inquiry or come in person and we will quote you on anything.

THE CORNER BOOKSTORES, Est. 1868. **ITHACA, N. Y.**

In writing to advertisers please mention THE CORNELL COUNTRYMAN